



SkyStar Aircraft Corporation

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SERVICE LETTER #22

October 21, 1992

SUBJECT: Header Tank and Fuel Line Routing

TO: All Kitfox Builders and Owners
(using a header tank)

FROM: SkyStar Aircraft Corporation

In keeping with SkyStar Aircraft policy of informing our customers of important technical information, this Service Letter is being issued as an advisory which needs your attention. While advising in nature, the subject of this letter should be considered carefully and a Service Bulletin will be issued in the near future with specific instructions regarding maintenance action you will need to perform.

SkyStar has received reports of header tanks being drained and not refilling (potentially causing fuel starvation), while there is still plenty of fuel in the wing tanks. This has occurred in aircraft with both front and rear mounted header tanks.

We have been able to recreate this fuel starvation in a special test rig. In our test the fuel lines were routed out of the wing tanks to the valve on the head rack, then across to the opposite side, down and back to the rear mounted header tank, or down under the door, forward to the firewall and up to the front mounted header tank. In each situation the header tank was vented and only one wing tank valve was turned to the "on" position. (It is feasible that this situation could occur with both wing tank valves turned on). The fuel flow to the header tank from the wing tank stopped when the wing tank was un-ported (as in a "slip" with low fuel) and did not resume because of the air introduced into the fuel line.

Further testing has shown that when the fuel line is routed directly forward out from the wing tank, above the door, then down along the diagonal brace to the front mounted header tank, or out of the tank and directly back to the rear mounted header tank, fuel flow would resume on its own to the header tank from the wing tank after un-porting.

NOTE: Those Kitfoxes with the standard nose tank and wing tanks should be aware of this situation, but because of the fuel's visibility in the standard nose tank there should be little possibility of fuel starvation.

RECOMMENDATIONS:

Until further testing, each Kitfox owner with a rear or front mounted header tank should (in the best interest of safety) take the following precautions:

(1) The highest point in the main fuel line routing should be the wing tank outlet. Tube routing should decline as rapidly as possible with no risers (high points). This will allow air to flow out of the tubing as quickly as possible. Check to make sure the fuel line coming out of each wing tank is configured in the most direct (in flight) down hill route to the header tank.

(2) If you have a wing tank installed in each wing, fly with both fuel valves in the "open" position.

(3) Avoid "slips" when fuel in the wing tanks is less than 1/2 full.

(4) If you have not installed a clear vent line from the header tank to the wing tank you need to do so (SkyStar offers a retro-fit vent line and nipple into the right wing tank). The Tygon tubing vent line from the header tank back up to the right wing tank allows the fuel to be monitored by observing the level and behavior of the fuel in the vent line (fuel seeks a common level). Prior to take-off, this tube should be inspected. Any fuel level noted in the vent tube below the level of the outlet from the wing tank is a concern. This would mean that either there is no fuel in the wing tanks or fuel flow has stopped flowing to the header tank.

This Service Letter will be followed-up by a detailed Service Bulletin containing information and recommendations, when testing is completed.

If you have any questions concerning this Bulletin or procedures, please feel free to call our Technical Support Dept. at (208) 466-1711.